

“Bilby” collimator vessel, design considerations & solutions.

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Topic: “Bilby” collimator vessel, design considerations & solutions.

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The Australian Nuclear Scientific & Technology Organisations (ANSTO) “Bilby” ToF SANS (Time of Flight Small Angle Neutron Scattering) instrument project is a complex instrument comprised of the following systems: Pre-Collimation, Collimation, Sample area, Detector and Detector vessel.

My presentation will focus on the ‘Bilby’ ToF SANS - Collimation System and will detail the following design constraints that heavily influenced it’s design:

- Narrow instrument footprint – the need to fit the Bilby Instrument between an existing SANS instrument (QUOKKA) and a future beam line CG2B.
- Concrete shielding underneath the collimator
- U shaped shielding over the collimator
- The inclusion of a 5 position aperture selector at the beam entry side of each of the collimation guide translating section within the collimation vessel
- Future requirement for possible maintenance access walkway above the Bilby collimation beam line.

My presentation will conclude with various ideas that these constraints generated along with the following benefits that the final “Vee” collimation base design provided:

- a reduced collimation vacuum volume for a reduced pump down time.
- an accessible place to locate the vacuum electrical feed throughs and associated cabling.
- a functional space to allow development and implementation of our ROTATIONAL aperture selectors.

Formal Invitation Letter Required

No

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